Federal Aviation Administration
Alaskan Region

Capstone Program Management Office
801 B Street, Suite 500
Anchorage Alaska 99501

Capstone Quarterly Report

1st Quarter FY00

October - December 1999

ALASKAN REGION
Capstone
Investment in Safety

Capstone To Date

Our goal of improving aviation safety and efficiency by putting cost effective, new technology avionics equipment into commercially operated aircraft in the Yukon-Kuskokwim delta region has shown significant short and long term progress during this, the first quarter of FY00.

Short term: One of the most significant is the installing of Capstone equipment. A provisioning STC permits the installation of the necessary trays, wiring harness and GX-60 GPS navcom. Nine provisional STC kits have been forwarded to three of the Bethel commercial operators, Larry's Flying Service, Peninsula Airways, Inc., and Ptarmigan Air, for installation. One complete Capstone avionics package, to include the MX-20 multifunction display and UAT transceiver, has been installed in the University of Alaska, Anchorage Cessna 180 for certification flight-testing.

Long term: A significant transition is taking place in our program. Focus will broaden from; improving the VFR pilot's situational awareness of terrain, traffic, and weather to include the initial fielding of a certificated ADS-B system capable of use by air traffic controllers for IFR applications. This will allow ADS-B equipped aircraft to receive "radar like" services when within the service volume of the ADS-B ground stations. This is a complex undertaking, which will require much cooperation between our lines-of-business here in Alaska, and between the Alaskan Region and Washington Headquarters. Capstone's goal is to begin use of ADS-B service for radar-like air traffic control functions in the Bethel area by January 1, 2001. We believe this can be achieved but there is risk associated with such an aggressive schedule.

This quarter also brought personnel change within the Capstone Program Office. Deborah Sweeley, has joined our staff as a Senior Program Analyst. Deborah is a graduate of Embry-Riddle Aeronautical University with a Masters degree in Aeronautical Science. She replaces Patrick Krishock who relocated to Texas.

Some additional highlights of the past quarter were:

- Five Capstone initiated stand-alone GPS approaches were published by NOAA in December 1999. These were; Mountain Village (2), Platinum (1), and St. Michael (2). This was the initial publication of over nineteen stand-alone GPS-based non-precision instrument approaches to one or more runways at eleven remote village airports in the Capstone area. These airports were jointly recommended by the Industry Council, the Alaska Department of Transportation and Public Facilities, and the Alaska Air Carriers Association as the highest priority for instrument approaches within the Capstone demonstration area.

- The University of Alaska conducted a beta session for the Capstone Pilot Training Program on December 7th and 8th at the Merrill Field complex. Several industry pilots were in the beta class along with an Industry Council representative, a FSDO inspector, and a pilot from the Capstone Program Office and an Air Traffic controller. A beta survey to obtain baseline data in support of the Capstone Safety Study was administered to the participants to obtain final review comments on its form and

content. The survey and training curriculum were finalized based on the feedback from the beta session.

- A contract was awarded October 15 to Ted Horner in Bethel for video services to capture development, installation, and testing of the Capstone system. He will develop a short public service announcement and a documentary about the Capstone approach to NAS modernization including industry and community participation in its planning.

Working with industry continues. Members of the Capstone team are continuing to meet monthly with the Bethel commercial operators in round table discussion meetings. The meetings serve as an information exchange program. In addition to the regularly scheduled Industry Council meetings some of the other meetings that were conducted during the first quarter of FY00 are:

1. October: Dave Ford, AND-500, Hal Bell, Safe Flight 21, Program, Di Reimold, FAA representative for the Mitre CAASD contract, and Jim Chadwick and Marc Narkus-Kramer of Mitre, met with the Regional Administrator and the Capstone team in Anchorage. Dave, Hal, and Di also traveled to Bethel and several of the Capstone villages.

2. On September 30, and October 1st, Capstone Program team members met with representatives from UPS Aviation Technologies, Mitre Corporation, Lockheed Martin, and Safe Flight 21 to discuss the Capstone ground system architecture, equipment interface requirements, and system certification. Weekly telcons were scheduled to continue these discussions. Also targeted was the definition of Flight Information Services-Broadcast (FIS-B) and Traffic Information Services-Broadcast (TIS-B).

3. November: Susan Stephenson, Telecommunications Management Supervisor, was provided with a Capstone Program briefing last week. Susan oversees the ANICS system, which Capstone will utilize for long distance telecommunications wherever possible.

4. December: Capstone representatives met with the Airports Division Planning & Programming and Safety & Standards branch managers to discuss the potential application of Capstone technology to help prevent ground vehicle runway incursion accidents. Capstone's concept is to install a simple, low-power, ADS-B transmitter, similar to the avionics UAT data link, which would automatically broadcast the vehicle's GPS position report to nearby Capstone-equipped aircraft. Under this initial effort, a limited number of maintenance vehicles at village airports will be equipped to determine if this is an effective method for alerting pilots to the presence of operating equipment.

To continue our forward progress and to meet the target date of January 1, 2001 to use the Capstone ADS-B signal for "radar like" services in the Bethel area we are working several areas that, at this time, have not been fully settled.

Avionics
- Certification
- Installation
- Capacity

Ground System
- Certification
- Installation

Micro-EARTS
- Certification

Spectrum
- Frequency
- Availability

Connectivity
- Aircraft
- Ground
- Interoperability

Airspace
- Routes
- Approaches

Procedures
- Approaches
- Enroute
- SVFR
- Internet Dispatcher Access

Operator Acceptance
- Cultural Issues (enforcement, etc.)

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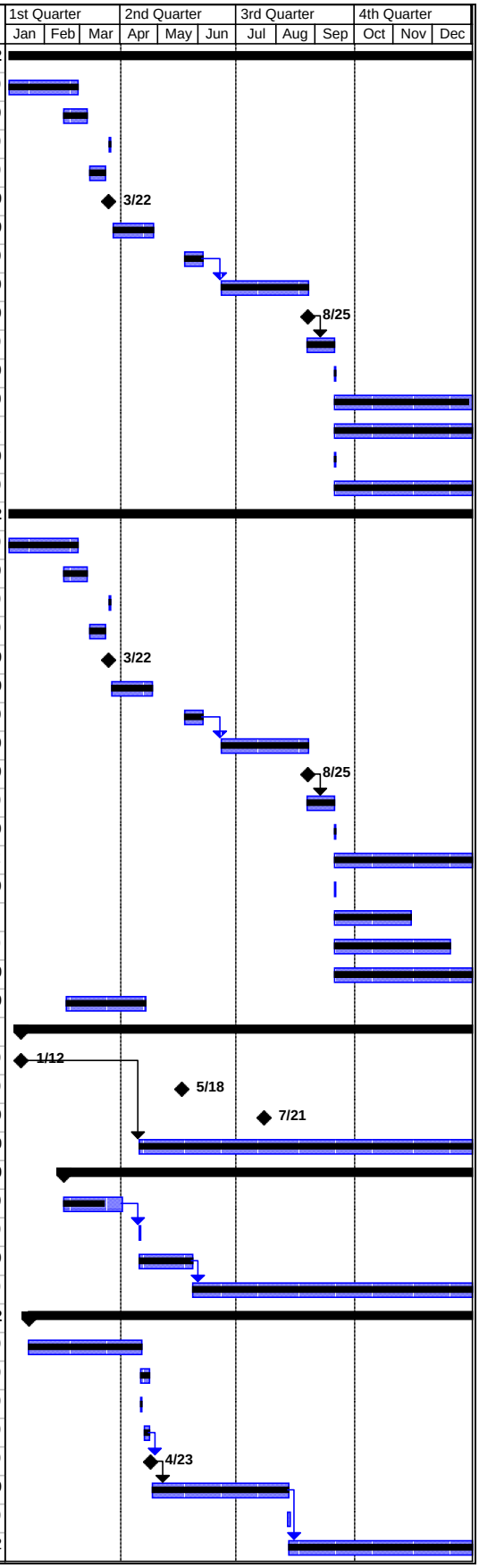
Capstone Timeline

ID	Task Name	Duration	Start	Finish
1	**Avionics**	**1042 days**	**Mon 1/4/99**	**Tue 12/31/02**
2	Develop/Review SOW	40 days	Mon 1/4/99	Fri 2/26/99
3	Develop RFO	15 days	Mon 2/15/99	Fri 3/5/99
4	Receipt of PR	1 day	Tue 3/23/99	Tue 3/23/99
5	Legal Review	10 days	Mon 3/8/99	Fri 3/19/99
6	Announcement	0 days	Mon 3/22/99	Mon 3/22/99
7	Solicitation Period	32 edays	Thu 3/25/99	Mon 4/26/99
8	Evaluate Offers/Discussion	10 days	Fri 5/21/99	Thu 6/3/99
9	Prepare Flight Demo	69 edays	Thu 6/17/99	Wed 8/25/99
10	Bethel Demo	0 days	Wed 8/25/99	Wed 8/25/99
11	Prepare Award/Congressional Notice	15 days	Wed 8/25/99	Tue 9/14/99
12	Award	1 day	Wed 9/15/99	Wed 9/15/99
13	Manufacture/Certification	83 days	Wed 9/15/99	Fri 1/7/00
14	Performance	860 days	Wed 9/15/99	Tue 12/31/02
15	Order Units	1 day	Wed 9/15/99	Wed 9/15/99
16	Deliver first Units	120 edays	Wed 9/15/99	Thu 1/13/00
17	**Ground Equipment**	**1042 days**	**Mon 1/4/99**	**Tue 12/31/02**
18	Develop/Review SOW	40 days	Mon 1/4/99	Fri 2/26/99
19	Develop RFO	15 days	Mon 2/15/99	Fri 3/5/99
20	Receipt of PR	1 day	Tue 3/23/99	Tue 3/23/99
21	Legal Review	10 days	Mon 3/8/99	Fri 3/19/99
22	Announcement	0 days	Mon 3/22/99	Mon 3/22/99
23	Solicitation Period	32 edays	Thu 3/25/99	Mon 4/26/99
24	Evaluate Offers/Discussion	10 days	Fri 5/21/99	Thu 6/3/99
25	Prepare Flight Demo	69 edays	Thu 6/17/99	Wed 8/25/99
26	Bethel Demo	0 days	Wed 8/25/99	Wed 8/25/99
27	Prepare Award/Congressional Notice	15 days	Wed 8/25/99	Tue 9/14/99
28	Award	1 day	Wed 9/15/99	Wed 9/15/99
29	Performance	860 days	Wed 9/15/99	Tue 12/31/02
30	Order Ground Units	1 day	Wed 9/15/99	Wed 9/15/99
31	Deliver First Unit	60 edays	Wed 9/15/99	Sun 11/14/99
32	Deliver Second Unit	90 edays	Wed 9/15/99	Tue 12/14/99
33	Deliver First Rack Mount Units	121 days	Wed 9/15/99	Wed 3/1/00
34	Evaluate MITRE Software	44 days	Wed 2/17/99	Mon 4/19/99
35	**MEARTS**	**406 days**	**Tue 1/12/99**	**Wed 8/2/00**
36	Purchase Modification	0 days	Tue 1/12/99	Tue 1/12/99
37	MEARTS BETA Demo	0 days	Tue 5/18/99	Tue 5/18/99
38	Bethel Demo	0 days	Wed 7/21/99	Wed 7/21/99
39	Certification	340 days	Thu 4/15/99	Wed 8/2/00
40	**Weather**	**447 days**	**Mon 2/15/99**	**Tue 10/31/00**
41	Site Surveys	34 days	Mon 2/15/99	Thu 4/1/99
42	Request for Bid	1 day	Thu 4/15/99	Thu 4/15/99
43	Contract Award	30 days	Thu 4/15/99	Wed 5/26/99
44	Site Intallations	374 days	Thu 5/27/99	Tue 10/31/00
45	**UAA**	**1010 days**	**Tue 1/19/99**	**Mon 12/2/02**
46	Develop/Review SOW	64 days	Tue 1/19/99	Fri 4/16/99
47	Develop RFO	6 days	Fri 4/16/99	Fri 4/23/99
48	Receipt of PR	1 day	Fri 4/16/99	Fri 4/16/99
49	Legal Review	5 days	Mon 4/19/99	Fri 4/23/99
50	Announcement	0 days	Fri 4/23/99	Fri 4/23/99
51	Prepare Award	76 days	Mon 4/26/99	Mon 8/9/99
52	Award	2 days	Mon 8/9/99	Tue 8/10/99
53	Performance	865 days	Tue 8/10/99	Mon 12/2/02



Spend Plan for FY 99 F&E Funding (1QFY00)

Spend Plan	1Q 99	2Q 99	3Q 99	4Q 99	1Q 00	2Q 00	3Q 00	4Q 00	1Q 01	2Q 01	3Q 01	4Q 01	Totals
Avionics				$3.6M	$400K								**$4M**
MEARTS		$2.8M											**$2.8M**
Ground				$700K	$500K								**$1.2M**
FIS	$250K				$141K	$50K			$59K				**$.5M**
UAA					$500K								**$.5M**
MISC/SPO	$150K	$340K	$20K	$50K	$400K	$20K	$20K						**$1M**
AWOS		$30K	$620K	$350K									**$1M**
Totals	**$.4M**	**$3.17M**	**$.64M**	**$4.7M**	**$1.941M**	**$.07M**	**$.02M**		**$.059M**				**$11M**
Travel	$7.5K	$26K	$9.5K	$57K									**$.1M**

Capstone Spend Plan:

a. 1Q 99: $250K of FIS and $150K of Misc/SPO (total $400K) was allowed to stay in Washington, DC to assist AND-470 in funding Datalink Analyses by John Hopkins University and a SETA contract position.

b. 2Q 99: $2.8M to fund Micro EARTS modification, $340K for starting up Capstone office and funding 2 NISC positions for 1 year, $30K for AWOS.

c. 3Q 99: $20K for operation of Capstone Program Office. $620K for AWOS.

d. 4Q 99: $3.4M obligated to purchasing 132 avionics equipment sets, simulator and training. $700K to AF for purchase of 6 ground stations, engineering and installation support. $50K for operation of Capstone Program Office. $350K for AWOS.

e. 1Q 00: $500K obligated to UAA to provide training and safety study for Capstone. $400K for installation of avionics sets. $500K for ground stations. $141K loaned from FIS to other Capstone programs. $400K lease of Capstone Office, 3 NISC positions and operations.

f. 2Q 00: $20K for Capstone Program Office operation. $50K lease of FIS data.

g. 3Q00: $20K lease for Capstone Office operation.

h. 1Q 01: $59K lease of FIS.

i. 4Q 01:

Spend Plan for FY 00 F&E Funding (1QFY00)

Spend Plan	1Q 00	2Q 00	3Q 00	4Q 00	1Q 01	2Q 01	3Q 01	4Q 01	Totals
Avionics		$.1M	$.5M	.304M					**$.904M**
Ground		$.25M	$.55M	$.5M					**$1.3M**
Spectrum			.5M						**$.5M**
FIS/TIS/Cert/Proc		$.25M	$.25M		$.041M				**$.541M**
MISC/SPO		$.1M	$.15M	$.15M	$.4M				**$.8M**
AWOS		$.5M	$.580M						**$1.080M**
GPS		$.1M	$.125M						**$.225M**
Gnd Vehicles			.15M						**$.150M**
MITRE		.5M							**$.5M**
Totals		**$1.8M**	**$2.805M**	**$.954M**	**$.441M**				**$6M**
Travel	$12K	$35K	$35K	$45K					**$.15M**

Capstone Spend Plan:

a. 1Q 00:

b. 2Q 00: $100K for operation of Capstone Program Office. $100K for avionics installations. $500K for AWOS work in ANI. $250K for FIS/TIS and certification/procedures work. $250K for finalizing first 12 ground stations. $100K for flight checks of GPS surveyed airports. $500K to fund 2 man-years of MITRE work.

c. 3Q 00: $150K for operation of Capstone Program Office. $500K for avionics installations. $500K for AWOS work in ANI.. $250K for FIS/TIS and certification/procedures work. $550K for additional ground station, installations, and certification work. $125K for flight checks of GPS surveyed airports. $150K for ground vehicle installations at 13 village airports. $500K for modifications of spectrum change in UATs.

d. 4Q 00: $150K for operation of Capstone Program Office. $500K for contract engineering for ground stations. $304K for final avionics instalations.

e. 1Q 01: $400K for operation of Capstone Program Office. $41K for FIS/TIS and certification/procedures work.

Status of Program Elements

Element 1. Aircraft Equipment Package

A. Coordinate and complete a Request For Information (RFI).	Completed
B. Coordinate and complete a Request For Offer (RF0).	Completed
C. Down select prospective vendor	Completed
D. Initial operational capability demonstration	Completed
E. Contract awarded	Completed
F. Install equipment	In Progress

Element 2. Obtain and Install Ground Infrastructure to Support ADS-B

A. Coordinate and complete a Request For Information (RFI).	Completed
B. Coordinate and evaluate purchase of a Mitre Ground Station.	Cancelled
C. Coordinate and complete a Request for Offer (RFO).	Completed
D. Down select prospective vendor	Completed
E. Initial operational capability demonstration	Completed
F. Contract awarded	Completed
G. Install Ground Stations	In Progress

Element 3. Micro-EARTS Adaptation

A. Procure modification to Micro-EARTS.	Completed
B. Conduct BETA Demo	Completed
C. Conduct design reviews	In Progress
D. Certification	In Planning

Element 4. Coordinate/Obtain/Implement Flight Information Services (FIS)

A. National contractor selection.	Completed
B. Select contractor	In Progress

Element 5. Train Capstone Participants

A. Complete statement of work.	Completed
B. Issue contract	Completed
C. Conduct Training	In Progress

Element 6. Obtain and Install Automated Weather Equipment

A. Select prospective sites	Completed
B. Perform site surveys	In Progress
C. Procure the automated weather equipment	Ordered
D. Install automated weather equipment	In Progress

Element 7 Conduct Safety and Human Factors Study

A. Complete statement of work.	Completed
B. Issue contract	Completed
C. Conduct Study	In Progress

Program Elements

1. Aircraft Equipment Package

Objective	Purpose
To equip up to 200 aircraft used by the commercial operators in the Yukon-Kuskokwim delta region of Alaska with a government-furnished Global Positioning System (GPS) based avionics package.	A significant number of mid-air collisions, controlled flight into terrain incidents, and weather-related accidents can be avoided with new technologies incorporated into the Capstone avionics package. The Alaskan Region's "Capstone Program" is an accelerated effort to improve aviation safety and efficiency through installation of government-furnished Global Positioning System (GPS)-based avionics and data link communications suites in most commercial aircraft serving the Yukon-Kuskokwim delta area. Capstone-equipped aircraft will be used initially to validate three of the nine high priority Free Flight Operational Enhancements requested by RTCA. • Flight Information Services (FIS) • Cost Effective Controlled Flight Into Terrain (CFIT) Avoidance • Enhanced See and Avoid The Capstone program will provide real world information and experience that will provide enhanced safety and operational capabilities.

Progress/Outcomes

A. Coordinate and complete a Request For Information (RFI).

Progress: - Completed

The Alaskan Region's Logistics Division published in the Commerce Business Daily a "Request for Information (RFI)." The RFI publicly announced to interested avionics vendors the FAA's proposed Capstone Program and requested submission of information on their products, services, and capabilities which are currently available, to meet the needs for the Capstone program. Information provided by the five vendors who responded will be considered as the FAA prepares performance specifications for Capstone Program avionics and ground transceiver equipment.

Aircraft Equipment Package - cont.

Progress/Outcomes - cont.

B. Coordinate and complete a Request for Offer (RFO)

Progress 1st Quarter FY99: - In Progress

The Alaskan Region's Logistics Division in coordination with ACO, AND, AIR and the Industry Council is working to complete the RFO.

Progress 2nd Quarter FY99: - Completed

The Alaskan Region's Logistics Division completed the RFO. The announcement was made on the internet March 22, 1999. The RFO will close April 26, 1999.

The Request for Proposals (RFP) for avionics suites will be published in hard copy controlled by the Logistics Division. Standard performance specifications common to the avionics industry are being utilized.

C. Down select prospective vendor

Progress 3rd Quarter FY99: - Completed

The Avionics RFO closed April 26, 1999. UPS Aviation Technologies (formerly II Morrow, Inc), an Oregon based subsidiary of United Parcel Service was down selected. UPS AT will be required to produce at least two sets of installed avionics (in aircraft provided by UPS AT), a ground station, and related software to demonstrate operation of the proposed avionics system, in flight, at Bethel, Alaska in August 1999. Following a successful flight demonstration, a production contract will be awarded. The number of avionics suites purchased, up to a maximum of 200, will be based on the total available budget of $4 million. It is anticipated approximately 150 units will actually be procured.

Progress/Outcomes - cont.

D. Conduct Initial operational capability demonstration

Progress 3rd Quarter FY99: - In Planning

An initial operational capability demonstration is scheduled for August 25, 1999. UPS AT will produce at least two sets of installed avionics (in aircraft provided by UPS AT), a ground station, and related software to demonstrate operation of the proposed avionics system, in flight, at Bethel Alaska.

Progress 4th Quarter FY99: - Completed

An initial operational capability demonstration was completed on August 25, 1999. . UPS AT, using a company-owned Beechcraft King Air airplane and a specially equipped Cessna Model 208 Caravan furnished by PenAir, UPS AT, demonstrated that its proposed Global Positioning System (GPS) navigation unit, multi-function cockpit display (MFD), and datalink radio system would meet FAA performance specifications for the Capstone Program.

E. Award Contract

Progress 4th Quarter FY99: - Completed

A determination was made that FAA specifications were met and a contract was awarded on September 13th, 1999. The contract was for Capstone avionics systems, installation kits, terrain databases, ground-based transceivers, an avionics training simulator and training assistance.

Progress/Outcomes - cont.

F. Install Equipment

Progress 4th Quarter FY99: In Progress

A provisioning STC, issued 16 November 1999 permits installation of the GX-50/60 GPS navigator and provisions for the Capstone configured MX-20 and UAT transceiver. Nine provisional STC kits have been forwarded to three of the Bethel commercial operators, Larry's Flying Service, Peninsula Airways, Inc., and Ptarmigan Air, for installation. One complete Capstone avionics package, to include the MX-20 multifunction display and UAT transceiver, has been installed in the University of Alaska, Anchorage Cessna 180 for certification flight-testing.

2. Obtain and Install Ground Infrastructure to Support ADS-B

Objective	Purpose
To install ADS-B ground stations at up to twelve (12) locations in the Yukon-Kuskokwim delta region of Alaska	To provide enhanced see and avoid information each ADS-B equipped aircraft broadcasts its precise position in space via a digital datalink along with other data, including airspeed, altitude and whether the aircraft is turning, climbing or descending. This provides other aircraft, as well as ground facilities that have ADS-B equipment a much more accurate depiction of air traffic than radar can provide. To provide the digital datalink capability in a cost-effective manner requires the installation of ground based transceivers.

Progress/Outcomes

A. Coordinate and complete a Request For Information (RFI)

Progress : - Completed

The Alaskan Region's Logistics Division published in the Commerce Business Daily a "Request for Information (RFI)." The RFI publicly announced to interested avionics vendors the FAA's proposed Capstone Program and requested submission of information on their products, services, and capabilities which are currently available, to meet the needs for the Capstone program. Information provided by the five vendors who responded will be considered as the FAA prepares performance specifications for Capstone Program avionics and ground transceiver equipment.

B. Coordinate and evaluate purchase of a Mitre Ground Station.

Progress 2nd Quarter FY99: - In Progress

The Alaskan Region Airway Facilities Division is in coordination with the SF21 office and Mitre/CAASD personnel regarding purchase of a Mitre ground station from the existing contract with IIMorrow for the Ohio Valley ground stations.

Progress 3rd Quarter FY99: - On Hold

The purchase of the Mitre ground station is on hold. The proposed vendor ground station and datalink infrastructure may not require an additional Mitre ground station. A decision will be made after the August equipment demonstration in Bethel.

Progress/Outcomes - cont.

B. Coordinate and evaluate purchase of a Mitre Ground Station – cont.

Progress 4th Quarter FY99: - Cancelled

The purchase of the Mitre ground station has been cancelled. The proposed vendor ground station and datalink infrastructure does not require an additional Mitre ground station.

C. Coordinate and complete a Request for Offer (RFO) for ground stations.

Progress 2nd Quarter FY99: - Completed

The Alaskan Region's Logistics Division completed the RFO. The announcement was made on the internet March 22, 1999. The RFO will close April 26, 1999.

The Request for Proposals (RFP) for avionics suites will be published in hard copy controlled by the Logistics Division. After an initial bidding period, FAA will accept written proposals for evaluation. An independent team will then select the best apparent offer based on technical qualifications and cost considerations using previously documented objective selection criteria. The number of ground stations allowed to be purchased as a separate line item under the Avionics contract includes a minimum of 12 and maximum of 50 sets if the line item is exercised. The apparent successful vendor will be required to produce at least two sets of installed avionics (in aircraft provided by the manufacturer), a ground station, and related software to demonstrate operation of the proposed avionics system, in flight, at Bethel, Alaska in July 1999. Following a successful demonstration, the decision to order ground stations from the Avionics vendor will be made. The Avionics RFP will include a delivery line item for data link ground stations compatible with the avionics. FAA may procure all necessary units from the vendor, or purchase some or all from another source, with cost being the primary consideration. Additional units beyond the 12 immediately required may be procured from the vendor if it is determined advantageous to FAA and if funds become available.

Progress/Outcomes - cont.

D. Down select prospective vendor.

Progress 3rd Quarter FY99: - Completed

UPS Aviation Technologies (formerly II Morrow, Inc), an Oregon based subsidiary of United Parcel Service was down selected. UPS AT will be required to produce at least two sets of installed avionics (in aircraft provided by UPS AT), a ground station, and related software to demonstrate operation of the proposed avionics system, in flight, at Bethel, Alaska in August 1999. Following a successful flight demonstration, a production contract will be awarded. FAA may procure all necessary units from the vendor, or purchase some or all from another source, with cost being the primary consideration. Additional units beyond the 12 immediately required may be procured if it is determined advantageous to FAA and if funds become available.

E. Conduct initial operational capability demonstration.

Progress 3rd Quarter FY99: - In Planning

The initial operational capability demonstration is planned for August 25, 1999. UPS AT will be required to produce at least two sets of installed avionics (in aircraft provided by UPS AT), a ground station, and related software to demonstrate operation of the proposed avionics system, in flight, at Bethel Alaska.

MITRE is teaming with the Alaskan Region to develop and configure an architecture and network for the Capstone program. The system will be based on the proven Ground Base Server developed by MITRE and tested on several though the Safe Flight 21 work with the CAA Ohio Valley project.

Progress 4th Quarter FY99: - Completed

An initial operational capability demonstration was completed on August 25, 1999. UPS AT, using a company-owned Beechcraft King Air airplane and a specially equipped Cessna Model 208 Caravan furnished by PenAir, UPS AT, demonstrated that its proposed ground station system would meet FAA performance specifications for the Capstone Program.

Obtain and Install Ground Infrastructure to Support ADS-B - cont.

Progress/Outcomes - cont.

F. Award contract

Progress 4th Quarter FY99: - Completed

After analyzing the data from the initial operational capability demonstration a determination was made that FAA specifications were met and a contract for the ground stations was awarded on September 13th

G. Install ground stations.

Progress 4th Quarter FY99: - Awaiting delivery

Seven ground stations have been ordered to date.

Progress 1st Quarter FY00: - In Progress

Six additional ground stations were ordered in the first quarter of FY00. Two from the 4th quarter FY99 original order have been received. It is anticipated that the installation of these two ground stations, at Bethel and Anchorage Center, will occur second quarter of FY00.

3. Micro-EARTS Adaptation

Objective	Purpose
Adapt the Micro-EARTS at the Anchorage ARTCC to receive and process ADS-B position reports and fuse radar targets for display to air traffic controllers and pilots.	To allow pilots of Capstone-equipped aircraft to see radar targets for all nearby aircraft as well as ADS-B equipped aircraft position reports and radar targets via Traffic Information Service-Broadcast (TIS-B) for all nearby traffic on their multiple function display (MFD). The Micro-EARTS at the Anchorage ARTCC is being adapted to receive and process ADS-B position reports and fuse radar targets for display to air traffic controllers and pilots.

Progress/Outcomes

A. Procure and install modification to Micro-EARTS.

Progress 2nd Quarter FY99: -In progress

A contract modification will be negotiated with Lockheed Martin for development of M-EARTS functions to support the Capstone Program. This principally includes display of ADS-B targets fused with radar targets and the capability to produce Traffic Information Service-Broadcast (TIS-B). Funding for this $2.8 million contract modification has already been transferred to Headquarters. A Beta Demonstration is planned for May 1999 with a demonstration planned for July 1999.

Progress 3rd Quarter FY99: -Completed

Lockheed martin Corporation representatives installed the Capstone Micro-EARTS modification during April in preparation of the Beta-demonstration.

B. Conduct Beta Demonstration.

Progress 3rd Quarter FY99: -Completed

The modification was successfully demonstrated during the week of April 19 and again on May 18-19. Radar targets were fused with ADS position reports and displayed on remote displays. Following testing, this capability is expected to reach Operational Readiness Demonstration by August 2000.

Micro-EARTS Adaptation - cont.

Progress/Outcomes - cont.

C. Design Reviews.

Progress 3rd Quarter FY99: - In Planning

Preliminary Design Review (PDR) for the MEARTS modification is scheduled for July 19-23rd July.

Progress 4th Quarter FY99: - In Progress

A Micro-EARTS Preliminary Design Review (PDR) at Anchorage ARTCC was completed during July. The Capstone modification to show ADS-B equipped aircraft on controller displays was discussed with Lockheed Martin representatives along with other software improvements. It will take about one year of testing before the ADS-B service can be certified for air traffic management functions.

D. Certification

Progress 3rd Quarter FY99: - In Planning

Progress 4th Quarter FY99: - In Progress

An initial operational capability demonstration was completed on August 25, 1999 during the Bethel demonstration. A meeting held in Salem Oregon, September 30th, 1999 resulted in a process to baseline and develop the Mitre software to be included in the certification process.

Progress 1st Quarter FY00: - In Progress

The certification effort is proceeding on schedule to meet the August FY00 timeline. Numerous telecons have been held as a follow-up to the meeting in Oregon. An additional group meeting is scheduled for the second quarter FY00 at the Technical Center in Atlantic City, New Jersey.

4. Coordinate/Obtain/Implement Flight Information Services (FIS)

Objective	Purpose
To work in conjunction with AND-700 to obtain and field FIS.	There is a significant amount of data in the National Airspace System that, if the pilot could have access to it in the cockpit, would make the flight safer through improved situational awareness (e.g., weather information) or more cost effective (e.g., knowledge of special use airspace restrictions). Without this information the pilot faces uncertain weather hazards and other operational inefficiencies. Capstone will use the Flight Information System (FIS) to receive current and forecasted weather and weather-related information as well as the status of SUAs. The enhanced weather products will be available to pilots and controllers, allowing them to share the same situational awareness. The information will be displayed graphically to the pilot. Expected benefits: increased availability of flight services, increased timeliness and quality of data on weather and system status, increased access to airspace, and reduced flight times and distance.

Progress/Outcomes

A. National contractor selection.

Progress 2nd Quarter FY99: -In progress

FAA selection of a national contractor(s) is underway for delivery of FIS products to properly equipped aircraft via a data link system.

Progress 3rd Quarter FY99: -In progress

FAA selection of a national contractor(s) is continuing. It appears that there will be a down select of two (2) service providers for the FISDL RFO by July 23,1999.

Progress 4th Quarter FY99: - Completed

On July 28, 1999 ARNAV Systems, Incorporated and NavRadio Corporation were selected as the national Flight Information Services Data Link (FISDL) service providers by headquarters. We will be examining the products and services offered by these vendors to determine which might be suitable for the commercial operators in the Capstone service area

Progress/Outcomes - cont.

B. Select Contractor

Progress 4th Quarter FY99: - In Progress

We are currently reviewing the contracts of each FISDL service provider to determine the national vendor products and services to be used in the Capstone program.

Progress 1st Quarter FY00: - In Progress

5. Train Capstone Participants

Objective	Purpose
To ensure all participants in the Capstone program are properly trained on the Capstone avionics.	To ensure the Capstone avionics equipment is utilized properly and to the fullest to achieve the greatest benefit to enhanced safety and operational capabilities all participants must be trained.

Progress/Outcomes

A. Complete the statement of work.

Progress 2nd Quarter FY99: - In Progress

The statement of work for training Capstone participants was delivered to the Alaskan Region's Logistics Division. The contracting officer is working with the Capstone office and the Regional Counsel Office to complete the training contract. It is anticipated that the contract will be awarded during the FY99 third quarter.

Progress 3rd Quarter FY99: - Completed

The contracting officer has issued the package to UAA and received their response. It is anticipated that the contract will be awarded during the FY99 fourth quarter.

B. Issue contract

Progress 3rd Quarter FY99: - In Progress

The contracting officer has issued the package to UAA and received their response. It is anticipated that the contract will be awarded during the FY99 fourth quarter.

Progress 4th Quarter FY99: - Completed

The University of Alaska has been awarded a contract to deliver a pilot training program for the Capstone equipment and to conduct Capstone participant training.

Train Capstone Participants - cont.

Progress/Outcomes - cont.

C. Conduct training

Progress 4th Quarter FY99: - In Planning

The University of Alaska is working with the Capstone office, UPS AT, Anchorage FSDO, Industry Council and the Bethel operators to develop the Capstone avionics training program. A beta training class is scheduled for 1st quarter FY00.

Progress 1st Quarter FY00: - In Planning

The University of Alaska conducted a beta session for the Capstone Pilot Training Program on December 7th and 8th at the Merrill Field complex. Several industry pilots were in the beta class along with an Industry Council representative, a FSDO inspector, and a pilot from the Capstone Program Office and an Air Traffic controller. Feedback from the beta class will be used to finalize the training curriculum. Formal Capstone training is scheduled to begin in the 2nd quarter FY00.

6. Obtain and Install Automated Weather Equipment

Objective	Purpose
To obtain and install Automated Weather Observing Equipment at up to 10 sites in the Capstone area.	To assist in providing weather information to accomplish IFR enroute and landings at Capstone area airports and to enable the use of the, up to eighteen, new GPS approaches requires current weather information be available. The weather observation equipment will meet at least the minimum functionality required by the Federal Aviation Regulations to support an instrument approach procedure for commercial operators. Weather sensors will provide the following observations: (a) wind speed, direction, and gusts; (b) altimeter setting; (c) temperature and dew point; (d) cloud height and sky cover; and (e) visibility. The equipment will provide an automatic radio broadcast of observations and have the capability to provide remote weather observations via a telephone line or connection to Service A.

Progress/Outcomes

A. Select prospective sites:

Progress 1st Quarter FY99: - Completed

The Industry Council has selected the following ten (10) villages as prospective sites for installation of automated weather equipment; Kipnuk, Platinum, Scammon Bay, Holy Cross, Kwigillingok, Kalskag, Mountain Village, Russian Mission, St. Michael, and Koliganek.

B. Perform site surveys:

Progress 1st Quarter FY99: - In Progress

ANI 700 has scheduled the site surveys at the ten sites. Scheduled completion date is during the second quarter FY99.

Progress 2nd Quarter FY99: - In Progress

ANI 700 has completed 7 of 10 sites. The survey results will be used to install the automated weather equipment.

Automated Weather Equipment - cont.

Progress/Outcomes - cont.

B. Perform site surveys – cont.

Progress 4th Quarter FY99: - In Progress

ANI 700 has completed 7 of 10 sites

C. Procure the automated weather equipment.

Progress 2nd Quarter FY99: - In Progress

The preliminary strategy developed by the NAS Implementation Center, ANI-700, provides for procurement of 10 plastic equipment shelters under an existing government supply contract. ANI-700 plans to construct a prototype aluminum frame structure for support of weather sensors. Maintenance personnel in Anchorage will evaluate the frame, which will span the shelter, for field suitability and the design will be finalized. A competitive advertisement will next be issued to selected, pre-qualified, bidders. The contract will include procurement of FAA-certified aviation weather observation equipment of the type planned for "NEXWOS." The sensors required will be the minimum necessary to support Capstone flight operations. The selected turnkey contractor will be responsible for fabrication of the aluminum frames per the FAA design drawings, installation of weather equipment within the government-furnished plastic shelters, transportation of all shelters, frames, and equipment to the specified village airports, and for installation at the specified locations in accordance with FAA design drawings and specifications.

Progress 3rd Quarter FY99: - Completed

The 10 plastic equipment shelters were purchased and shipped to Anchorage for retrofitting. Ten AWOS III facilities were purchased from Qualimetrics, Inc. The first item arrived and is being installed in a proto-type facility being constructed at the ANI Anchorage Complex.

Automated Weather Equipment - cont.

Progress/Outcomes - cont.

D. Install Automated Weather Equipment

Progress 3rd Quarter FY99: - In Progress

Four sites have been selected for installation before the end of FY99. They include Scammon Bay, Holy Cross, Mountain Village and St. Michael. Real estate and utilities coordination is ongoing.

Progress 4th Quarter FY99: - In Progress

A proto-type facility for the Capstone automated weather observation equipment was constructed at the ANI Anchorage Complex. A "open house" was held at the Lake Hood property to inspect and "kick the tires" on the new weather station enclosure on Friday, September 9th . The materials and equipment will be shipped to Holy Cross in September 1999 to begin installation.

Progress 1st Quarter FY00: - In Progress

Phase I, which includes grounding, bonding and shelter installation was completed for four of the ten Capstone sites; Holy Cross, Mountain Village, Saint Michael and Scammon Bay. Phase II is scheduled for the 2nd quarter of FY00.

7. Conduct Safety and Human Factors Study

Objective	Purpose
To accomplish independent documentation, measurement, and reporting of the Capstone project.	A major "Capstone" objective is to improve safety in Alaska while offering efficiencies to operators. Key to the Capstones program's overall success is the need conduct an independent evaluation of system safety improvements and to document the user benefits.

Progress/Outcomes - cont.

A. Complete the statement of work and issue contract.

Progress 2nd Quarter FY99: -In Progress

The statement of work for the safety study was delivered to the Alaskan Region's Logistics Division. The contracting officer is working with the Capstone office and the Regional Counsel Office to complete the contract. It is anticipated that the contract will be let during the third quarter.

Progress 3rd Quarter FY99: - Completed

The contracting officer has issued the package to UAA and received their response. It is anticipated that the contract will be led during the FY99 fourth quarter.

B. Issue contract

Progress 3rd Quarter FY99: - In Progress

The contracting officer has issued the package to UAA and received their response. It is anticipated that the contract will be led during the FY99 fourth quarter.

Progress 4th Quarter FY99: - Completed

The University of Alaska has been contracted to conduct an independent analysis of safety improvements related to the Capstone program.

Conduct Safety and Human Factors Study – cont.

Progress/Outcomes - cont.

C. Conduct Study

Progress 4th Quarter FY99: - In Progress

The University of Alaska is in the process of gathering data to develop the baseline for the Capstone safety study.

Progress 1st Quarter FY00: - In Progress

Quarterly meetings are scheduled to discuss the study process and progress. A interim baseline report is scheduled for 2nd quarter FY00